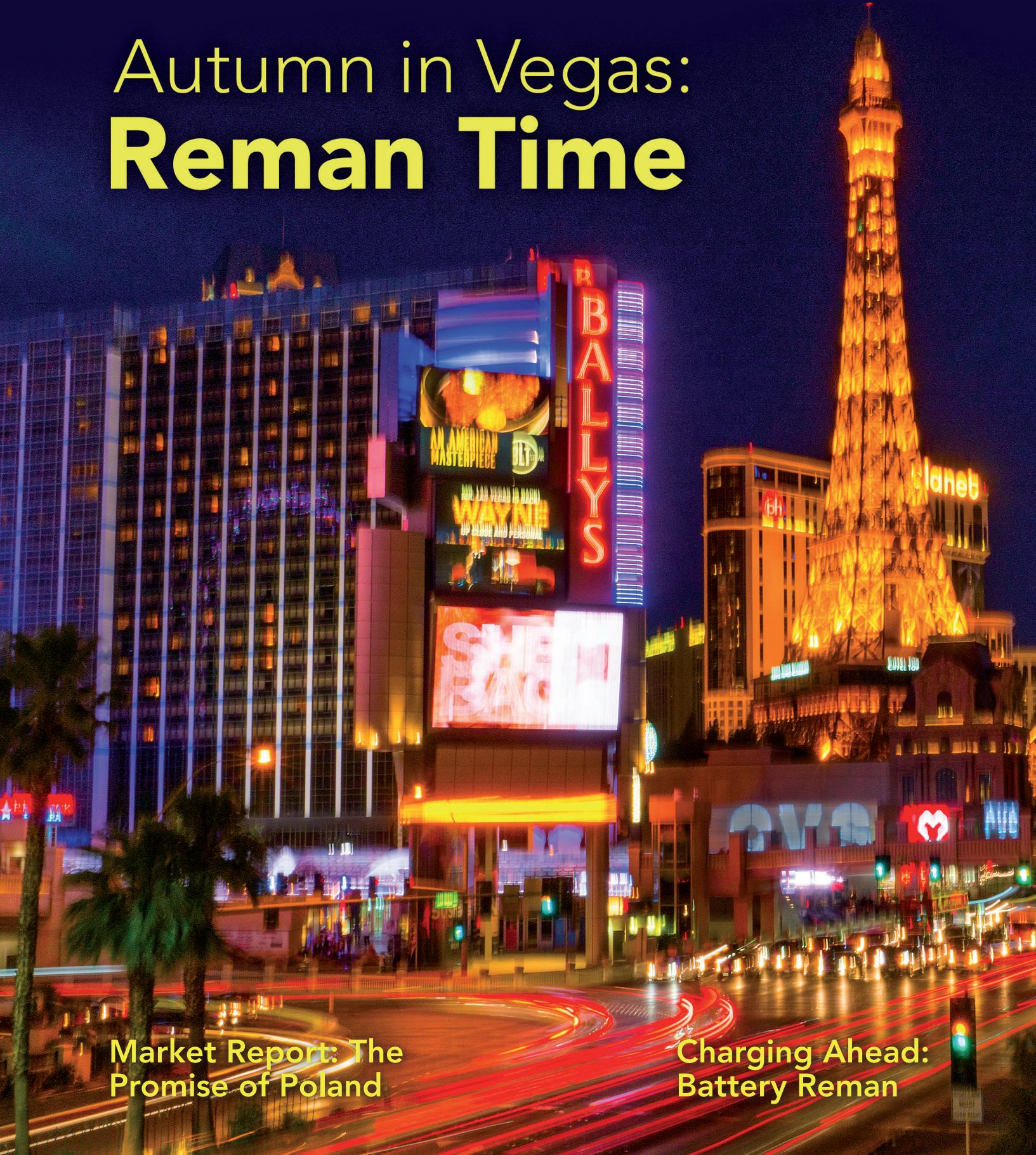


Autumn in Vegas: Reman Time



Market Report: The
Promise of Poland

Charging Ahead:
Battery Reman

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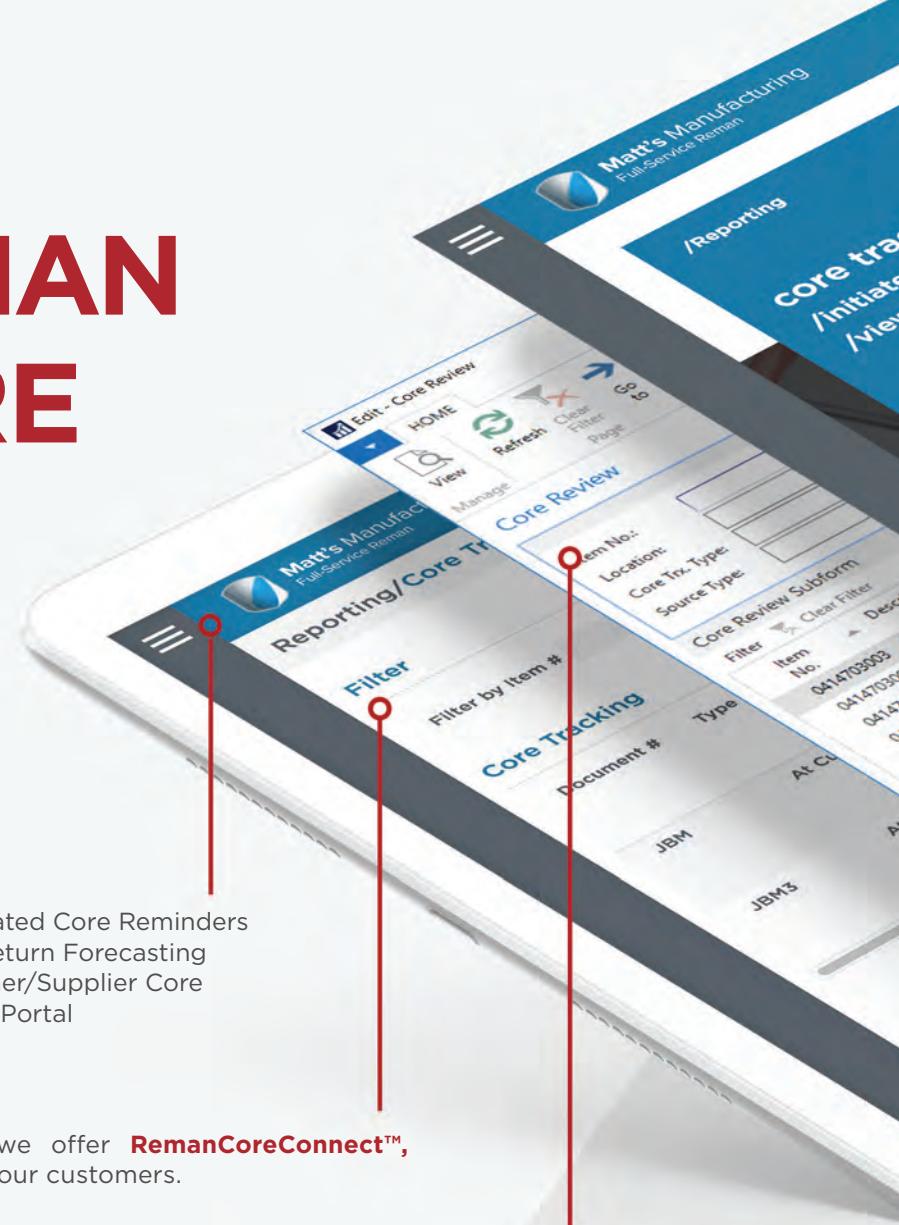
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DIGITALEUROPE Pushes For Remanufacturing



Europe's largest IT association has a new woman at the helm - and a stronger emphasis on remanufacturing. Reman World spoke with DIGITALEUROPE CEO Cecilia Bonefeld-Dahl about her challenges and how her association is supporting remanufacturing.

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**Taking Charge:
Remanufacturing the
World's Batteries**

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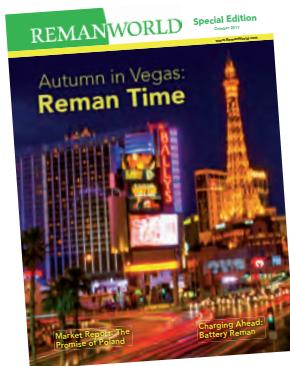
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A Good Year For Remanufacturing

As the year is drawing to a close, there can be little doubt that 2017 has been a good year for remanufacturing. On a number of levels and in different parts of the world, remanufacturers and their associations, indeed the entire supply chain, have moved their industries forward with commitment and dedication. Rarely in recent times have so many companies, their leaders and their supporting industries come together for a common purpose.

The examples are numerous. The birth of REMADE, the US public/private initiative that provides a huge boost for reman research and collaboration across the board. The effort initiated by RIC, the Remanufacturing Industries Council to gather a number of reman sectors into one collaborative grouping. APRA's partnership with Automechanika's fair for next year's NACE Automechanika in Atlanta, Georgia. MERA's expansion of the reman section at the AAPEX show in Las Vegas. Across the pond, in Europe, APRA's European division has embarked on a new journey under a new chairman and a new management set-up.

And, if we may say so ourselves, the launch of Reman World little more than ten months ago, has given reman industry a new forceful voice that's already being heard around the world. We're committed to continuing in 2018 as we began in 2017.

Like in previous years, the end of October/beginning November in Las Vegas marks some of the true highlights of an eventful year. With the oldest running reman exhibition, APRA's traditional Big R show, and MERA's growing reman section at the huge AAPEX event at Bally's and Sand's respectively, 2017 is bound to finish on a roll. At both events an impressive array of educational and professional opportunities are on offer – all of which are set to raise the operating standards of the industry and its players.

This is the way forward for remanufacturing. Raising standards. Demonstrating initiative. Pulling in the same direction. Creating common ground for moving forward. With good will on all sides, 2018 seems destined to become yet another bumper year.

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Induction Valve Seat Removal (IVSR) System

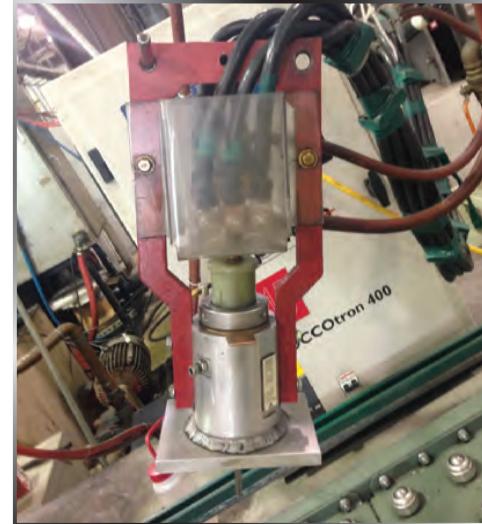
Electromagnetic Non-Contact Flameless Heating Technology

Innovation
Revolution

Ajax TOCCO Magnethermic's IVSR systems have revolutionized heavy duty engine remanufacturing operations, specifically the task of removing pressed-in valve seats from engine cylinder heads. Ajax TOCCO's IVSR process has increased profitability of engine reman facilities across North America while increasing quality, efficiency, core retention rates, operator safety and ergonomics. Ajax TOCCO's IVSR technology is so effective, valve seats can be easily removed by hand without any special tools. Valve seats are heated and cooled in seconds, resulting in mechanical shrinking of the pressed-in valve seats.

Features & Benefits:

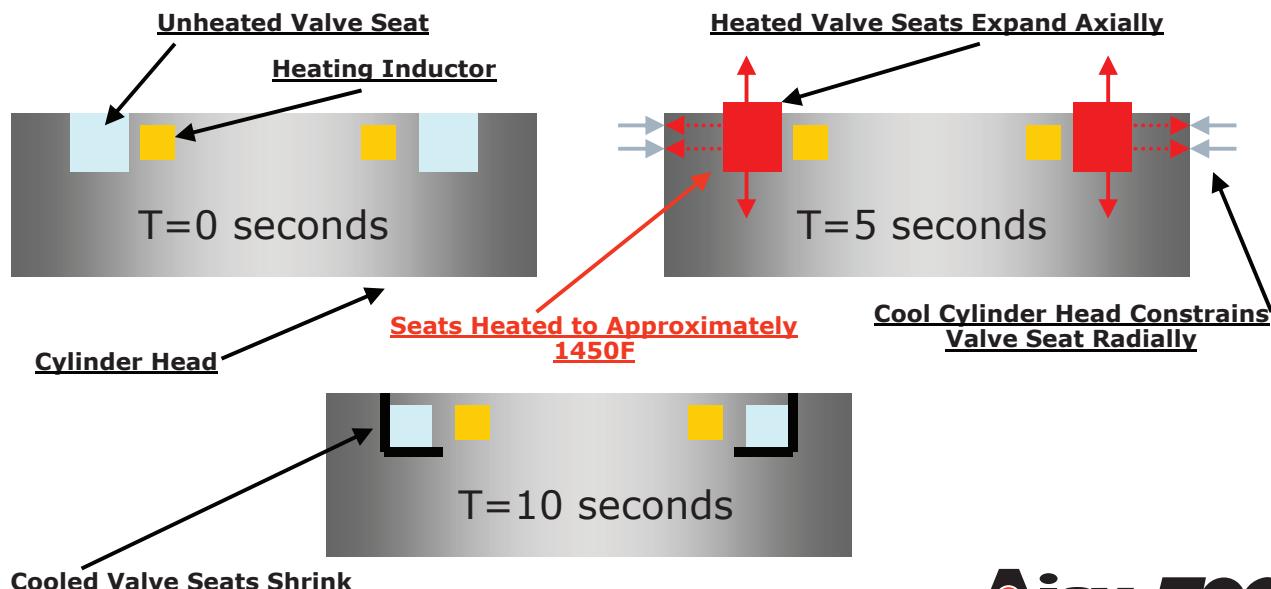
- Eliminates open flame
- Increases core recovery rates
- Eliminates collateral damage to heads
- Increases production rates
- Special tools, grippers and pullers are not required
- Improves operator comfort and safety
- Compatible with all makes and models of cylinder heads
- Passenger car engine applications, including aluminum cylinder heads



Hand Held Heating Apparatus



IVSR Shrunken Valve Seat



Ajax ~~TOCCO~~
Magnethermic

Moving in and Moving Forward

The recently created REMADE Institute has found a home a little more than a mile from the Golisano Institute of Sustainability and the Rochester Institute of Technology campus.

The research and development projects in the national consortium of universities, national research laboratories, businesses, trade organizations and states that make up REMADE will be overseen and coordinated from the upper floor of a modern tech building at 150 Lucius Gordon Drive in West Henrietta, New York.

Caterpillar Celebrates Reman Program's 30th Anniversary

2017 marks the 30th anniversary of the Cat® Certified Rebuild (CCR) program, Caterpillar, the world's largest remanufacturer, announced. The program has grown considerably in the last few years and delivered its 10,000th unit during the summer.



The CCR program incorporates the very latest Cat technology and critical engineering updates into customer equipment at a significant cost savings, Caterpillar said. After a thorough evaluation, including more than 350 tests and inspections and the automatic replacement of approximately 7,000 parts, customers get a like-new piece of equipment and warranty. This means that customers benefit from lower owning and operating costs, extended equipment life and the ability to be competitive even in an uncertain economy. ■

Here are some of the people that will direct the most comprehensive efforts ever to advance manufacturing and remanufacturing efficiency in the REMADE HQ:

Left to right, Michelle Schlafer, COO; Nabil Nasr, CEO; Kevin Kepner, Legal Counsel; Kevin Kelley, Director, Sustainability & Business Development; Lori Webster, Director, Marketing & Communications; and Mary Jo Johnson, Director of Finance.

The staffing of the new operation is yet to be completed, but 20 people with academ-



ic, business, marketing, and technical expertise are currently working out of the new location. ■

Michelle Schlafer, new COO at REMADE

Michelle Schlafer has been appointed Chief Operating Officer of the REMADE Institute. She brings expertise from her 24 years in a variety of leadership positions at Xerox Corporation to her key role at REMADE. She will be directing project management, business development and sustainability, education and work force development, and marketing and communication.



force behind the REMADE consortium.

"What really drew me in was the combination of working with such talented people and the mission of the organization," she added.

As the REMADE COO, Schlafer is also responsible for the ongoing staffing of the institute.

"We're looking for talented individuals who share the mission and the vision of REMADE," she said. "Anyone interested may contact us directly on our website at remadeinstitute.org." ■

MPA Releases Core Exchange Program Video



MPA, one of USA's top parts distributors, recently released its new Core Exchange Program video which describes an essential aspect of MPA's remanufacturing process. The video details the sustainable process of core recycling and how customers return cores back to MPA to be used as raw material for remanufactured starters, alternators, master cylinders, and power brake boosters. Also provided is a step-by-step breakdown of the core accounting process and how cores are recorded on MPA's balance sheet. ■

RIC Setting Tight Timeframe for Global Reman Standard

Webinar to discuss journey from American to International Standard

Remanufacturing Industries Council, RIC, Vice Chairman John Disharoon is setting an aggressive timetable of little more than one year from now to go global with a remanufacturing standard built on the national US ANSI standard approved early this year.

To explain and build support for the process, RIC is holding a webinar for up to 300 stakeholders in the industry on October 24.

The end goal, in the words of Disharoon, who is also Director Market Access Reman, Components & Work Tools at Caterpillar Inc.:

"An international remanufacturing process standard that will be recognized, published, peer reviewed and will be able to be referred to by manufacturers around the world as THE process that they follow when they remanufacture."



John Disharoon

Don Chenevert, Jr, Deputy General Counsel at SRC Holdings Corporation, was the author of the ANSI standard and a member of RIC's Trade & Policy Committee. He will co-host the webinar with the committee chairman, Ramesh Subramonian, Senior Director at FTI Consulting.

The webinar will start with a discussion of the ANSI standard that was completed, what worked, lessons learned and then dive into how RIC is working to develop a global standard for remanufacturing, including challenges and opportunities.

"Don will cover the areas involved in picking international partners, so we have representation outside the United States to help develop the standard to take to the ISO board and get it approved as an international standard," said Disharoon, who will be pushing hard to move the standards process forward.

"We're going to try and get it done in the next year. Oftentimes, when the standards are in the development process there can be a two or three months lag between versions and renditions of the standards to have everybody sign off on it, so it may be an aggressive timeframe, but we hope to accomplish it in the 2018 timeframe."

To sign up for the webinar, go to remanstandard.us/standards-webinar/ ■

Jamaican Government Bluestamps Reman

A new exclusive government authorization to a Jamaican car dealer and parts distributor is set to open up a market for remanufactured automotive products in Jamaica.

The special permit was granted to 47 year-old Gordon Baldie's Inter-Caribbean Automotive Parts Remanufacture Distribution Limited (ICARD) after lengthy consideration by Jamaica's National Contract Commission.

Baldie is confident that the government decision will enable him to establish a firm basis for remanufactured products in the Caribbean nation and, in the longer term, across the Caribbean Community and



Common Market, CARICOM.

"The potential is tremendous," stated Baldie, who told Reman World, that he is looking for overseas partners with know-how and financial muscle to help lift the project off the ground.

Jamaica has a population of 3.5 million and a car parc of 500,000 mostly older vehicles. With relatively few or no remanufactured or other quality parts available, vehicles are often repaired with old used or 'overhauled' parts with little or no warranty.

Based in Montego Bay, Baldie has built up an import of remanufactured parts for his repair facility in recent years. Its remanufac-

tured parts mainly come from Japan, from where large numbers of right-hand steering used cars are also imported to Jamaica.

With the new license, ICARD is now prepared to engage with international suppliers of remanufactured products. The license specifically grants ICARD the exclusive rights to supply remanufactured parts to all government owned vehicles. Initially, ICARD plans to focus on distribution to fleets owned by the government as well as private fleets.

Baldie's initial license is for three years. In addition, his company enjoys free-zone status, eliminating import duties that otherwise run as high as 60%. He has a 40,000 squaremeter facility that will serve as a hub for his future operation. ■

New President at Flight Systems Automotive

Craig Stark has been named the president of Flight Systems Automotive Group (FSAG), the company has announced. Assuming the position in May, Stark has relocated to Harrisburg, Pennsylvania, the company's headquarters.

He brings to his new position a strong background in aftermarket sales and marketing for the passenger cars and



heavy duty vehicles in addition to extensive experience in Remanufacturing, the company said.

Craig joins FSAG from Q Holding Company, a leading global manufacturer for the life sciences market, where he was Executive Vice President of Sales and Marketing. Previously, Craig held the position of Vice President of Sales at Sonnax and Accel Performance Group. He was also a director of Sales and Marketing at Bendix and Freudenberg-NOK Corteco. ■

New Turbo Test Machine From Turbo Technologies

Turbo Technologies, one of the UK's foremost producers of new and remanufactured vehicle turbochargers, has introduced an additional machine to its range of test equipment, the VSFR (Vibration Sorting and Flow Rig). Designed to appeal to small workshops and garages, the new machine combines hi-speed balancing and vane

flow testing for both passenger car and light commercial vehicle turbochargers.

The VSFR utilises the company's extensive computer controlled measuring system technology together with high level in-house engineering capability for both core balancing and variable geometry turbocharger calibration.

BALANCING ON THE VSFR

By using the same balancing process used on the company's VSR3 test machine and sharing the same quality construction, the VSFR is capable of balancing turbo cores at speeds up to 300,000 revs/min, Turbo Technologies said.

The flow-setting process used on the VSFR follows the same procedure used by OEMs in the original manufacture of the turbocharger. ■



Ajax TOCCO Looking for Growth in Reman Market

Ajax TOCCO Magnethermic, with more than 100 years of experience supplying heating equipment, is targeting the remanufacturing industry as a significant growth area.

According to John Lormin, Field Sales Engineer, Low Power Products, currently, automotive and heavy duty remanufacturers account for about 25% of sales in the Ajax TOCCO low power heating equipment division. Among the strongest new growth areas, Lormin points to the recent delivery of valve seat removal induction heaters to major engine reman companies.



"There are reman areas that we don't even know about yet where our products may have multiple applications. In addition to offering high performance standards, our products are green, with no combustion gasses or need for exhaust treatment," Lormin said.

Ajax TOCCO is a major part of the Park Ohio Group, with 5,000 employees, 90 locations, sales and service in 17 countries and total turnover of \$1.5 billion. ■

"Remanufacturing Furniture Can Improve the Economy"

A new study from one of Europe's leading environmental organizations paints a strongly optimistic picture of the potential for remanufacturing discarded or obsolete furniture. The study from the European Environmental Bureau, EEB, estimates that remanufacturing discarded furniture could create up to 157,000 jobs and save around 6 million tonnes of CO₂ equivalent in the EU.

The report emphasises that waste materials from discarded furniture is a missed opportunity for the economy and for resource preservation. "Refurbishment of furniture ensures that resources remain in the economy instead of landfills and incinerators, which heightens the quantity of CO₂ released into the air," the report says.

EEB senior policy officer for product policy Carsten Wachholz explained: "By avoiding

furniture waste, EU policy makers can boost a market that was hard hit by the recent crises and is part of our cultural heritage and style. But this will require the adoption of appropriate demand and supply chain levers to support a change across the industry."

Research has provided a range of policy options to enhance waste prevention and resource management in the European furniture sector, the report states. The furniture sector is facing numerous obstacles due to increased costs of raw materials, poor turnover in the workforce and expanded competition of low-cost countries such as China.

COUNTER-MEASURES INCLUDE:

- Tougher criteria for Ecodesign - restricting the use of chemicals to help reuse, repair and recycling

- Improving business models to cut furniture waste
- Encouragement to take back discarded furniture and mandatory production schemes
- Information on life-cycle impact for procurers, repairers, recyclers and consumers.

Altogether, 10 million tonnes of furniture is put on the EU market each year, and an equal amount is discarded by businesses and consumers, the report states.

The EEB is the largest network of environmental citizens' organisations in Europe. It consists of around 140 member organisations in more than 30 countries, including virtually all EU Member States. ■



Remanufacturing: The Journey from American to International Standard

Register at <http://www.remanstandard.us/standards-webinar>



DIGITALEUROPE: The Real Value of Remanufacturing

Today's linear approach of growth is not sustainable. In a world with an ever-growing population it is no longer possible to rely on the "take, make, and throw away approach". A circular economy is the answer to this challenge. The digital industry strongly supports moves to implement circular economy practices and thinking and has already taken various steps to advance this transition.

By William Schwarck, Editor/Publisher, Reman World

Having operated at the forefront of digitalisation for more than a decade, DIGITALEUROPE, the influential association representing the digital tech industry in Europe, sees remanufacturing as an important component of its remit - and its new Director General is committed to supporting remanufacturing accordingly.

"There's no doubt that remanufacturing and other segments within the whole area of sustainability are of growing importance to the way society is developing," Cecilia Bonefeld-Dahl said in a conversation with Reman World. "One of our tasks is to make sure that the potential of the reuse, repair, refurbishment and re-manufacturing business of the ICT industry to the Circular Economy is recognized. This is important for the environment, for jobs and for the nations and regions of Europe." Appointed Director General of DIGITALEUROPE in April, Bonefeld-Dahl brings to her new position deep insights into the digitalisation of business and society which she gained from a 20-year career at the highest levels of the IT industry in her home

The European Commission defines a circular economy as a set of activities in which "the value of products, materials and resources is maintained in the economy for as long as possible and the generation of waste minimised". The European Parliament Research Service states that a circular economy is (partly) "based on sharing, leasing, reuse, repair, refurbishment", to which one should add remanufacturing.

country, Denmark, and on the international scene.

After holding executive positions for Cap Gemini, Oracle and IBM, Bonefeld-Dahl supported small and medium-sized enterprises (SMEs) building business in Europe and China and ran her own IT company. In addition, she has served as board member or chairman of professional and public bodies, including the chairmanship of the Danish IT industry's trade association and the Danish Government's Export Council.

Remanufacturing:
10-fold increase in CO₂ savings
related to remanufacturing between
2003 and 2009

Those who know her well see her as the perfect match for maximising the influence in Brussels and across EU of DIGITALEUROPE and pushing the association forward. The Brussels-based organisation represents 25,000 digital companies of all sizes across Europe, including more than 60 world-class corporate members and almost 40 national trade associations.

"Digital has become the main driver for growth, and the ongoing digital transformation affects all industrial sectors" Bonefeld-Dahl said. "Politicians and policy-makers in Brussels and across Europe have now realised that an unfragmented digital single market in Europe is the condition to ensure innovation, prosperity, jobs and growth in Europe - and we are committed to working closely with them to ensure it happens."

Bonefeld-Dahl is fully aware of the importance and scale of the mission. The coming decade will determine whether Europe with its multitude of nations, people, regions, aspirations and widely diverse business sectors will be able to compete with the giants of the United States, China and South-East Asia. So far, she believes, Europe is failing to match its competitors in terms of IT, management skills and, indeed, vision. So something has to be done.

"This is the case in traditional industries as well as within the IT industry," she warned. "We have fallen behind in educating SME business leaders, young people, the general public and the politicians about what the future demands and offers in terms of IT challenges. We face a huge task in defining what digital growth in Europe requires in terms of politics and legislative work. Over the next ten years, providing information and training across a whole range of issues will be extremely important."

"For European SMEs to grow, they must be able to operate in an unfragmented market with the right policy conditions. Otherwise, they will move elsewhere."



Cecilia Bonefeld-Dahl, new Director General of DIGITALEUROPE

"Let's not forget, that because digital has no borders, EU legislation cannot create borders either," she added. "For European SMEs to grow, they must be able to operate in an unfragmented market with the right policy conditions. Otherwise, they will move elsewhere. Fortunately we see, that many of the firms that in recent years moved their operations out of Europe are now returning. We must ensure that they continue to see the benefits of being here. I believe that the EU Commission understands all this. But it's an ongoing task. In some ways I think our task is to bring the real world to Brussels."

NEW REMAN REPORT

DIGITALEUROPE's recognition of remanufacturing was recently demonstrated when the association published a new paper on remanufacturing, "The contribution of the Digital Industry to repair, remanufacturing and refurbishment in the circular economy". The paper highlighted the sector's growing contribution to job creation in Europe in line with circular economy thinking.

"With the circular economy being high on the political agenda, we discovered there is little to no knowledge on repair/refurbishment and remanufacturing activities and facilities or networks of the ICT (Information

and Communication Technology). The aim of the paper was to describe long-standing business practices in the ICT sector which represent, next to waste collection and treatment facilities, the circular economy backbone of the ICT industry in Europe," the report says.

EXISTING PRACTICES

"Policy makers need to be aware of existing practices when regulating and take them into consideration. For instance, it is important to distinguish the repair/refurbishment of used products from waste. Repair needs to be price competitive, which is why repair of ICT products is regionally concentrated. Shipment of waste and in particular hazardous waste is more costly than used goods which is why the distinction between used goods and waste is very important."

In order to provide cost efficient repair and remanufacturing services, members of DIGITALEUROPE have established central facilities inside and outside of the EU. Within Europe, these are based in Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, The Netherlands, Poland, Romania, Sweden, UK and many more EU Member States.

"We also want to demonstrate that repair, refurbishment and remanufacturing activities represent a well-functioning commercial market," the paper states. "Calls from some policymakers and stakeholders to limit instruction manuals, technical information, spare parts or equipment or software required for the re-use of product available free of charge to anyone goes against intellectual property rights and endangers the described existing repair/refurbishments facilities and networks."

Commercial and environmental benefits
 "Remanufacturing is a circular economy best practice as its benefits are both commercial and environmental. It prolongs the life and value of a product and reduces the need for new materials. It provides options to avoid or postpone recycling and makes the best use of resources that have gone into the production of a product. CO₂ savings related to remanufacturing have increased 10-fold (across sectors) between 2003 and 2009. It provides a new commercial life for used equipment, ensures collection of older ICT equipment, delivers the same or better warranty as new products, and ultimately supports the creation of local jobs." ■

Spiers New Technologies: Charging Ahead - A New Reman Segment

Dirk Spiers joined the future of battery remanufacturing before most people even saw it coming. His Spiers New Technology is executing a global plan to dominate the life cycle management of electric car batteries

By Niels V. Christiansen, US Editor

As the revolutionary Chevrolet Volt was introduced in 2010, Spiers was already a true believer in car electrification. With little experience in automotive remanufacturing, he was puzzled by the fact that no-one ever mentioned, let alone seemed to have any plan for what would become of the powerful and expensive electric vehicle battery packs powering the cars at their end-of-life cycle.

In 2011, at a technology conference in Washington D.C., the keynote speaker was Tony Posawatz, the Line Director at General Motors, responsible for the Volt. Spiers cornered him, struck up a lengthy conversation and asked Posawatz about his concerns.

"He went completely silent," Spiers recalled. "Then he said: 'We never thought about that. You're absolutely correct. This will be the future.'"

A Dutchman in Oklahoma City

Dirk Spiers

Age: 58
CEO, Founder
Spiers New Technologies
(founded 2015)
Oklahoma City
Life-long entrepreneur in the
Netherlands, Spain, Germany, London,
San Francisco, the Far East and
Oklahoma City

GOING GLOBAL

Today, Spiers is heading up Spiers New Technologies, SNT, the market leader in life cycle management of advanced battery packs. Posawatz is on the company board. GM, Nissan and Eaton are the first OEM customers, with more expected to follow shortly. And the company, established from the ground up in a three-building 100,000 square foot facility in Oklahoma City, Oklahoma, over the past 2 ½ years with a staff of 60 engineers and technicians, is about to go global.

"The automotive industry is in for a storm of change."

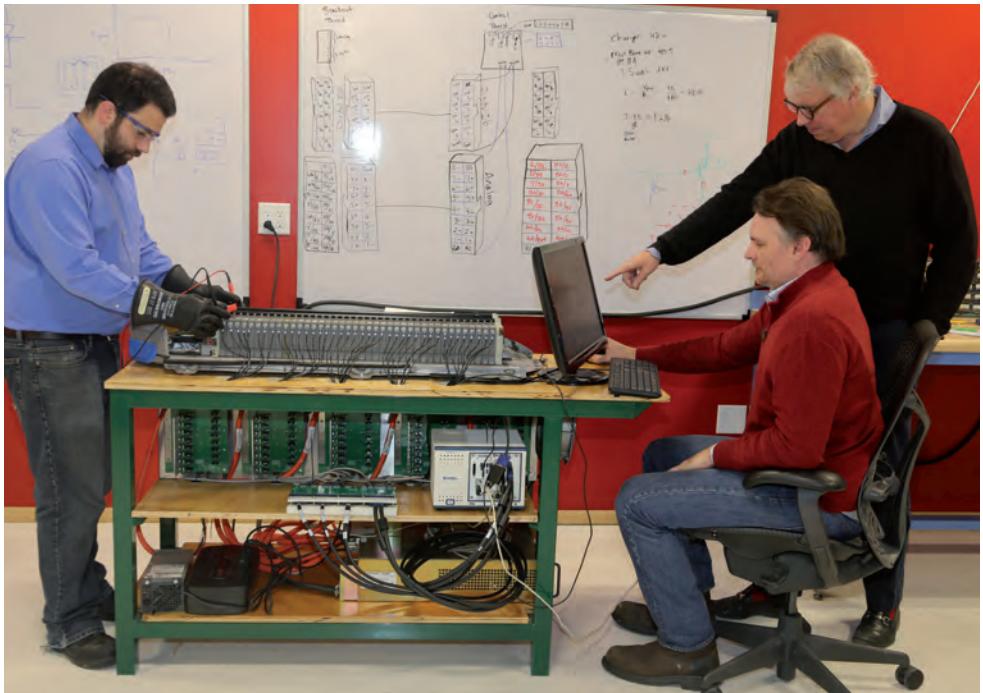
Clones of the facility are planned to go up in rapid succession in the Netherlands next spring, in China soon thereafter, in Japan and in New Zealand. The aim is to secure future market share by going all out on investment now rather than go for early profits.



Dirk Spiers - Aggressive strategy to go global

RRRR-R

SNT Oklahoma is designed to offer a one-stop solution for life-cycle management of the advanced batteries used in



electric and hybrid vehicles, currently lithium-iron units. The processes cover the four Rs - repair, remanufacturing, refurbishing and repurposing. The chosen option depends on the condition of each battery pack as it arrives at the facility.

The set-up differs from other types of reman plants. Safety procedures are of utmost importance in the handling of potentially volatile materials and high voltage units, and all aspects of the operation are subject to stringent regulations. Storage areas must be climate controlled and closely monitored, and stored items must be serviced at prescribed intervals. Operating procedures are so detailed, that each tiny component and part is logged and tracked.

Battery packs removed from vehicles are analysed and screened. Batteries to be redeployed in vehicles are repaired and refurbished while vehicle battery packs and modules suited for second life deployment in energy storage systems or other non-vehicle applications are remanufactured. And battery packs with no further useful purpose are taken apart, neutralized and recycled - the fifth R. At current capacity, SNT can handle 1500 units per month.

MARKET LEADER

Investments so far are approaching \$10 million and the entire set-up, from the storage facilities and the costly cycle equipment down to the detailed operating instructions, will be replicated in the future overseas facilities.

"At this point, we are the world leader in this space by a wide margin," claims Spiers, adding that a big part of the success is due to his luck in attracting a team of high caliber engineers.

In the meantime, the opportunity Spiers identified in 2010 has taken on new dimensions.

Spiers and his crew of battery pack experts can handle 1500 battery packs per month at current capacity.

Originally, most people in the automotive industry viewed electric vehicles as a passing fad. "I was often told that I was nuts," Spiers said. But recent developments are turning skeptics into believers.

Electric vehicle sales are up - 74% in the US in the first quarter of 2017. Auto companies around the world are announcing plans for hundreds of billions of dollars in investments in vehicle electrification – hybrids, plug-ins and all-electric.

"Everyone was saying we were crazy."

Among recent announcements:

- By 2019, there will be an electric motor in every Volvo.
- By 2030, all Volkswagens, Audis, Porsches, Bentleys and Lamborghinis will be electrified, while \$80 billion will be committed by Volkswagen to electrification and battery investments.
- By 2022, Mercedes will offer electric versions of every model.
- By 2020, BMW, Jaguar and Land Rover will electrify every model.

The media and the public are taking notice. And back in Oklahoma City, Spiers is feeling an ever greater urgency to execute his grand plan.

IMMENSE OPPORTUNITY

"The automotive industry is in for a storm of change. Not only are cars becoming electric. Autonomous vehicles will drive on batteries even more," he said. "Today, carmakers may put out a new model every four or five years. Electric cars will be much quicker to refresh than traditional vehicles, which means you have to work and change much quicker."

Unlike the vast majority of companies out there, that he regards as "incrementalists," Spiers believes, that he and his business are on their way to take full advantage of this fast moving new world.

"I believe the opportunity is truly immense. And I think we are creating a segment. Battery reman. No one saw it coming. No-one was thinking it. Everyone was saying we were crazy. And we were - and we are. But if we don't screw it up and we execute well, we can be a really, really good company."

"We can be the big daddy, the gorilla in our field, and that is incredible. How many people ever get that opportunity?" ■

End of One Era, Dawn of Another

By Joe Kripli, President, APRA, the automotive Parts Remanufacturers Association



As so often before, I'm looking forward to welcoming exhibitors, visitors and APRA's many friends and supporters to this year's Big R. Judging from the numerous positive reactions to the 2017 show, it's bound to be an important event for the reman industry at a time of change. As we have seen on several occasions during the year, 2017 is destined go down as a watershed year in the history of remanufacturing with important new initiatives, such as REMADE, ongoing moves by companies, associations and, increasingly, public bodies.

In short, it's a great time to be part of remanufacturing and it's clear to us at APRA that the Big R will remain an integral part of the development of remanufacturing. After all, right from the outset nearly 80 years ago, APRA has been a driving force in automotive remanufacturing, a source of inspiration and support for generations of remanufacturers. To this day, we remain so – and we're committed to strengthen that position as the industry faces challenges and embraces change. As they say, challenge means opportunity.

For automotive remanufacturing in general and APRA in particular, part of the changing landscape is the fact that 2017 marks a very significant change in the life of Big R. As many of you will already be aware, Big R will move to Atlanta, Georgia, in 2018 to co-locate with the NACE/Automechanika, which has been successfully run by Germany's Automechanika, the world's largest organizer of automotive exhibitions.

I'm totally confident that our new partnership will give everyone great networking opportunities, better floor traffic for exhibitors and new business opportunities for everyone. If you have ever visited an Automechanika event, you will have seen that they and their 16 automotive exhibitions world-wide, are class acts and of the highest professional level. In other words, this is a move to look forward to, following the uncertain partnership with another show organizer over the past couple of years.

I could add that it is no secret that Las Vegas has been getting quite expensive from the standpoint of putting on shows, and that Big R's relocation to Atlanta will bring the show closer to remanufacturers and suppliers in the eastern part of our country.

Moreover, and perhaps no less important, we looked at Automechanika's performance with the NACE Automechanika in Chicago in July of this year where they hosted more than 176 technical seminars, ranging from CANbus training to understanding transmission fault codes and turbochargers. The event offered a wide range of informative products, business opportunities and training seminars. No doubt, APRA Members will greatly benefit from these opportunities when we meet next year in Atlanta.

Nevertheless, for the present, it's still all about Big R, Las Vegas. Once again, the show presents great seminars and technical presentations as well as an impressive group of exhibitors who offer plenty of opportunities for the remanufacturer. And, while you're here, don't forget to pick up your free visitor's pass for next year's Atlanta Show.

Moving to Atlanta marks the end of more than a decade in Las Vegas for Big R. It also represents the beginning of a new era. Make sure, you will be there. Don't be left behind, stay ahead of the curve. ■

New Chairman at APRA



Omar Cueto

After two years, Omar Cueto is leaving his position as Chairman of APRA. In a breach with tradition until then, Cueto was re-elected last year because of the commitments to the association and the challenges in a motor industry under change.

A frequent lecturer on all aspects of diesel engines at international conferences, Omar Cueto will now be devoting his time

to running L&J Diesel Service. A 46 years old company based in Florida, L&J specializes in aftermarket remanufacturing of all types of diesel fuel injection systems.



Jay Robie

Jay Robie, the 51 year-old founder and CEO of Arizona-based Phoenix Automotive Cores, will take over the chairmanship of APRA following the Big R in Las Vegas.

In just 13 years in the remanufacturing industry, Robie has built a leading core supply company in the US, with subsidiaries in Houston, Texas, Atlanta, Georgia, and Manchester, New Hampshire.

Robie, who is currently serving as APRA vice chairman, will be the first APRA chairman elected for a two-year term. The expectation, according to Robie, is that this will create more continuity and better opportunity to formulate and see through any changes in the vision of the organization and the values proposition and activities for the members.

Automechanika North America To Increase Emphasis on Reman

By William Schwarck, Editor/Publisher Reman World.

When APRA, the Automotive Parts Remanufacturers Association, gathers the industry for its annual Big R show next year, the venue will be new – and so will the show partner. In a break with the tradition of the past decade, the address will be Atlanta, Georgia. The partner will be Nace Automechanika, the US offshoot of the world's largest organiser of automotive shows.

Since its inception more than 40 years ago, Germany-based Frankfurt Messe has developed its Automechanika concept from one event in Frankfurt to a successful world-wide chain of regional shows, totalling 17 events in 15 countries. Today, more than 600.000 visitors and thousands of exhibitors in Europe, USA, Asia, Africa and the Middle East attend the events. At Automechanika Frankfurt, alone, the number exceeded 130,000 visitors from 170 countries over five days in 2016.

In partnering with APRA's Big R in Atlanta, Automechanika takes yet another step - into remanufacturing.

A segment which is rapidly gaining in importance with governments and industry across the world, automotive remanufacturing has had a low-profile presence at Automechanika Frankfurt in recent years, and to a smaller degree in other Automechanika shows. Bringing APRA's Big R into the Automechanika family will add a new dimension to reman.

Dennis Smith, the CEO of Automechanika North America, expressed it like this:

"Remanufacturing and remanufactured parts are definitely a part of the industry ecosystem and are sourced to provide the consumer an economic and ecological solution to their vehicle repair and maintenance.

The challenge is to assist the remanufacturing companies in the automotive industry in delivering messaging on the quality of remanufacturing to our attendee base. Thus, together with collision and aftermarket focus of NACE Automechanika,



Dennis Smith, CEO,
Automechanika
North America

it is important to feature the future of remanufacturing and sustainability."

Referring to Automechanika's lengthy history, Smith pointed out that the global quest for sustainability is an important driver for the shows' progress.

"Sustainability is definitely key to extending the lifespan of light vehicles and preserving raw materials" he said. "The challenge is how the remanufacturing industry will sustain in line with changing vehicle technologies and systems that are becoming more dependent on sensors and IT solutions that are time limited. We want to support the remanufacturing industry and continue to provide a platform for the products that

are being developed to extend the life of parts. In addition to this, we would like for APRA to take full advantage of this platform to showcase their new green initiatives that can be adopted by all of our expected attendees, which is exciting." ■

2017 International Big R Agenda

FRIDAY, OCTOBER 27

8:00 AM - 5:00 PM APRA Board of Directors Meeting

9:00 AM - 9:50 AM

Reman Turbochargers - Is it right for your business?

SATURDAY, OCTOBER 28

9:00 AM - 5:00 PM Registration Open

10:00 AM - 10:50 AM

Presented by Greg Arsenault, AMBAC International Cleaning Session

9:00 AM - 5:00 PM Exhibitor Set-up

Presented by Dr. Michael Haselkorn, Golisano Institute for Sustainability (GIS), Rochester Institute of Technology (RIT)

2:00 PM - 4:50 PM Education Sessions

2:00 PM - 4:50 PM Transbility

Presented by Wayne Colonna, ATSG

11:00 AM - 1:00 PM

Awards Lunch with

2:00 pm - 3:50 PM A Review of Newer Charging/Starting Systems & Components

Presented by Mohammad Samii, Sammy's Auto Electric Service

1:30 PM

Keynote Speaker

4:00 PM - 4:50 PM TBD

5:00 PM - 6:00 PM Member Reception (Free for APRA Members)

1:30 PM - 6:00 PM

Big R Trade Show

5:00 PM - 6:00 PM Member Reception (Free for APRA Members)

6:00 PM - 7:00 PM

Opening Reception

SUNDAY, OCTOBER 29

8:00 AM - 5:00 PM Registration Open

MONDAY, OCTOBER 30

9:00 AM - 10:50 AM Education Sessions

8:00 AM - 12:00 PM

Registration Open

9:00 am - 10:50 AM Advanced Vehicles: Here Now and What's Coming

9:00 AM - 1:00 PM

Trade Show Open

Presented by Jerry Truglia, ATTS

12:00 PM

Past Presidents Lunch

9:00 am - 10:50 AM Advanced Vehicles: Here Now and What's Coming

1:00 PM

Trade Show Tear Down

Presented by Jerry Truglia, ATTS

1:30 PM - 2:20 PM

Core Supplier Meeting

The Remanufacturing Experience at AAPEX: Creating Business Connections, Driving Profitability

By John Chalifoux, President and COO of MERA – the Remanufacturing Association



As one of the world's largest automotive aftermarket trade shows with over 2,200 exhibitors, AAPEX is the perfect business environment for automotive parts remanufacturers to reach a wide audience of buyers.

Taking place October 30–November 2 at the Sands Expo Center in Las Vegas, AAPEX will feature 45,000 targeted purchasers – including many C-suite decision-makers – from across the globe.

Not just for new aftermarket parts, the show also boasts *The Remanufacturing Experience at AAPEX*, presented by MERA – The Remanufacturing Association and the AutoCare Association. The Remanufacturing Experience at AAPEX is a four-day program with three key components:

- Educational sessions during the **REMANedu Conference**
- Leading-company exhibits on the main show floor and in the **Remanufacturing Section**
- Numerous networking opportunities, including the **Remanufacturing Industry Reception**

In total, approximately 160,000 automotive aftermarket professionals from more than 140 countries are projected to be in Las Vegas during AAPEX 2017.

From its start in 2012 with 19 exhibitors, the Remanufacturing Section has grown to more than 50 exhibitors in 2017. In total, more than 100 remanufacturing-related companies will exhibit throughout the show, turning AAPEX into one of the leading trade show experiences for remanufactured automotive parts.

STRONG BRAND PROMOTION

We are always striving to enhance *The Remanufacturing Experience at AAPEX*, and make it the most valuable trade show for our members. AAPEX consistently offers an engaged audience, along with the ability to match buyers with potential business partners. We often hear how AAPEX delivers strong brand promotion,

Remanufacturing Industry Reception

An event that has become a highlight of the show, and one that continues to grow each year, is the Remanufacturing Industry Reception – an invitation-only networking event. Taking place in The Venetian Hotel, the reception is a can't-miss event for reman executives. To inquire about gaining access to the reception, call 248.727.1902.

and direct sales orders, as well.

Highlights of *The Remanufacturing Experience at AAPEX* include:

- Over 45,000 targeted buyers
- 100+ remanufacturing-related booths throughout the show
- Over 52,000 sq ft of remanufacturing-affiliated booth space
- 45 percent C-suite audience for show attendance
- REMANedu Conference: 1 day, 7 sessions (reman education on your own time)
- Remanufacturing Industry Reception at AAPEX (by invitation only)



Signage on the green carpet welcomes attendees to the exhibits during the Remanufacturing Experience at AAPEX

This year, *The Remanufacturing Experience at AAPEX* will kick-off on Monday, October 30, with the REMANedu Conference, a full-day program of educational sessions tailored to remanufacturing interests. Hosted at The Venetian Hotel one day before AAPEX 2017 officially opens at the Sands Expo Center, the conference is an excellent opportunity to hear about some of the latest remanufacturing solutions, technologies, and trends impacting the industry. Last year, more than 120 people attended REMANedu sessions throughout

the day, and 60 percent were C-suite executives.

KEY FEATURE

Then, starting Oct. 31, the Remanufacturing Section opens to prospective buyers and all AAPEX attendees. AAPEX literally rolls out the green carpet to represent the environmental stewardship of exhibiting companies and the sustainability benefits of remanufactured products. This messaging is a key feature of the Remanufacturing Section, and it sets the zone apart from other areas of the show floor. Remanufacturing exhibits remain open through the close of AAPEX on November 2.

An event that has become a highlight of the show, and one that continues to grow each year, is the Remanufacturing Industry Reception – an invitation-only networking event. Taking place in The Venetian Hotel, the reception is a can't-miss event for reman executives. To inquire about gaining access to the reception, call 248.727.1902.

For 2017, AAPEX challenged the "performance-enhancement engineers" to boost the original Remanufacturing Experience at AAPEX that attendees have come to know and love, and they succeeded by making this year's event the largest reman show at AAPEX ever. As MERA works to further advance remanufacturing at AAPEX, industry participants stand to gain even more brand exposure, as well as sales and networking opportunities. If your company is an automotive parts remanufacturer – or if it performs another key function in the supply chain – you owe it to your business to take a look at the Remanufacturing Experience. ■

The Remanufacturing Experience at AAPEX

Schedule of Events:

Monday, Oct. 30

REMANedu Conference:

10 a.m. – 4:00 p.m.

Tuesday, Oct. 31 – Thursday, Nov. 2

Remanufacturing Section Exhibits

Wednesday, Nov. 1

Remanufacturing Industry Reception at AAPEX (by invitation only)

REMANedu Conference

Monday, October 30, 2017

Session Schedule:

10:00 a.m. – 10:40 a.m. **Analytics in Remanufacturing**

Presented by Matt Pagni, Vice President, Enterprise Solutions, Level Seven

10:40 a.m. – 11:20 a.m. **Cleaning Challenges and Their Solutions**

Presented by Steve Deal, Veteran Chemist/Account Manager, Chemtool

11:20 a.m. – 12:00 p.m. **Thermal Spray Solutions for Component Longevity and Remanufacturing**

Presented by Pete Kutsopias, Midwestern US Regional Sales Manager, Praxair Surface Technologies

12:00 p.m. – 12:20 p.m. **Networking Break**

12:20 p.m. – 12:40 p.m. **Reman Certification: Quality on Par with New**

Presented by Dave McGuire, Director, Membership & Business Development, MERA

12:40 – 1:20 p.m. **Maximizing ROI on Every Core**

Presented by Phil Vince, Program Manager, Fuel and Turbo Systems, PurePower Technologies

1:20 – 2 p.m. **Impact of 3D Printing on Remanufacturing**

Presented by Robert Boehner, Principal Lecturer and Executive in Residence, Saunders College of Business, Rochester Institute of Technology

2 – 2:20 p.m. **Networking Break**

2:20 – 3 p.m. **Steering Systems Technology Trends & the Aftermarket**

Presented by Aaron Toole, Power Steering Category Manager, Freudenberg-NOK

3 – 3:40 p.m. **Technician Training: Advancing and Protecting Your Brand**

Presented by Stan Gowisnock, President and CEO, CARDONE Industries

3:40 – 4 p.m. **Open Q&A / Closing Remarks**



Buyers visit exhibitor booths along one of the main aisles during the Remanufacturing Experience at AAPEX.



All Fired Up. Ready to Go

The message from the Remanufacturing and Sustainability Conference in early October in Americas Motor City, Detroit, was clear: Remanufacturing is on the move.

The 40 or so attendees who made the ½ hour trip to the final point on the agenda, went on adrenaline pumping wild rides on the M1 Concourse Champion Motor Speedway, the hottest new attraction for car enthusiasts in America, in the Detroit-suburb of Pontiac.

700 horsepower muscle cars with professional drivers lined up to take all comers to the limit on the 1.5 mile track. Top speeds reached 117 miles per hour, rubber burned and remanufacturers from all parts of the US and Canada clung to their seats, as they worked their way in bumper to bumper racing style around the track.

Earlier, the full complement of about 80 participants in the conference, co-hosted by MERA – The Remanufacturing Associa-

tion and the Golisano Institute for Sustainability, got a sense of the opportunities ahead for their reman companies as well as the risks.

They were updated on the latest economic, political, and technological outlook.

Co-host Nabil Nasr, the Golisano Institute Director, offered a preview into how the newest public/private REMADE Institute, of which he is the CEO, will help the industry meet technological challenges.

CHANGE IS COMING

Keynote speaker, Phil Christman, President of Operations, Navistar, Inc., showed how remanufacturing plays a growing and crucial role in the rise of the company. But he issued a stern warning to those who choose not to look ahead and grab the opportuni-

ties from the change that's going to come. "If you're not thinking of connected vehicles, autonomous vehicles and electric vehicles," he said, "you're going to be out of business."

Thomas Gartland, former President, North America, of the Avis Budget Group, inspired the conference with his own experiences as well as the outstanding business results when leaders lead with the heart as well as the mind.

At the M1 Concourse, participants wondered if the harrowing ride on the track could be a precursor of what's ahead for the reman industry.

If that's the case, the good news at the end of the day was that everyone made it safely and exhilarated to the finish line. ■

REMANWORLD



Giant-slayer Wins Inaugural Michael Cardone Leadership Award

Eric Smith, a small business owner and remanufacturer in Charleston, West Virginia, who took on the giant Lexmark Corporation and won a monumental victory at the US Supreme Court, is the first recipient of the Michael Cardone Leadership Award, recognizing exceptional leadership in remanufacturing and sustainability. Smith was recognized for beating back attempts by Lexmark to restrict the remanufacturing and resale by third party companies of patented Lexmark laser toner print cartridges. Where other companies sued by Lexmark agreed to settle and abide by restrictions set by Lexmark, Smith and his family-run Impression Products Inc. fought for four years in the courts to defeat the encroachment on their rights and business practices.

An appeals court ruled in favor of Lexmark, but the US Supreme Court in a landmark ruling in June of 2017 sided with Impression Products. The court upheld long-standing precedent and clarified that products may



be remanufactured and sold generally without regard to patents under the doctrine of patent exhaustion – to the relief of all kinds of businesses in the US and abroad engaged in common repair, recycling, remanufacturing and reselling of patented products.

"With this award we recognize and thank Eric Smith, the man behind the company

that won the key case for remanufacturing in the US Supreme Court," said John Chalifoux, President and CEO of MERA – the Remanufacturing Association in presenting the award.

The annual award, named for Michael Cardone Jr., co-founder of Cardone Industries, Inc., and Founding Chairman of MERA – the Remanufacturing Association was presented for the first time at the Remanufacturing and Sustainability Conference in early October in Troy, Michigan.

"I want to express my sincere appreciation to the MERA Group for recognizing me with the first ever Michael Cardone Leadership Award. I am beyond exstatic to be the first recipient of such a prestigious award." Smith said in a statement to the conference.

Smith was unable to travel to the conference to accept the award in person due to illness. ■

More Companies Approved for Manufacturing Again Certification

The number of automotive remanufacturing companies approved for the new Manufactured Again certification stands at 21, with a total of 50 manufacturing facilities across the US

Seven major remanufacturing companies joined the list days before the dual conferences in Detroit, the Remanufacturing Technology Forum held by MERA – The Remanufacturing Association at Wayne State University, and the Remanufacturing and Sustainability Conference, co-hosted by MERA and the Golisano Institute for Sustainability at Rochester Institute of Technology.

"The Manufactured Again Certification program is quickly becoming known as the place where manufacturing and remanufacturing are held to the same quality standards," said John Chalifoux, president and COO of MERA. "The rapid growth of the program confirms the marketplace demand for industry members to clearly and

collectively communicate the quality and sustainability benefits of remanufactured goods."

The program was developed by MERA. The initial 14 companies approved earlier this year included some of the largest US automotive and heavy duty remanufacturers. The most recently approved Manufactured Again ambassadors are BBB Industries, Arnott Industries, Cummins, Brake Parts, Inc., Detroit Reman, DIPACO/Dtech and Haldex Brake Products.

To qualify for the program, companies must provide evidence of a third-party audit that certifies their manufacturing



processes to one of the program's accepted quality management system standards, including ISO 9001 and IATF16949.

MERA Chairman Peter Butterfield told the Sustainability Conference that the manufactured Again Program is a first step to differentiate good quality and reman from rebuild. "There are many great reman companies out there that are not ISO certified," he acknowledged. "We need to figure that out. We are not unrealistic about getting immediate results. But 21 companies is a huge statement about where this thing could and should go in the future. This is just a beginning." ■

Poland - Market of Opportunity for Remanufacturing

Over the past 15 years, the Polish car population has seen a huge transformation. Before Poland joined the European Union in 2004, brands like Daewoo, Polonez and Fiat were the most popular cars on Polish roads. Now the market is wide open and has been for some years

By Bo Hansen

Poland's membership of the EU made it possible for Poles to travel to Germany, bring back used cars and register them in Poland with few or no problems. Until 2004, this was virtually impossible to do.

As a result, between 2005 and 2008, imports of used cars exploded with an average of 900 000 cars imported per year by private motorists or dealers. Typically, imports were 7-10 year-old cars. Among popular brands were Ford, Opel (GM), VW and Toyota, most of which required service - some more than others. Expressing hostility to the number of imported vehicles, some environmentalist groups protested that Germany was using Poland as a dumping ground for its old, used or obsolete vehicles. This, of course, was incorrect as the imports were driven by Polish consumer demand in the first place.

When the financial crisis hit in 2008, imports immediately declined from 1.1 million cars in 2008 to approximately 700,000 in 2009. By 2016, imports had risen to 1,050,000 used cars, annually, clear evidence that Poland has fully emerged from the crisis.

As a member of the European Union, Poland is, of course, affected by EU legislation. Some 15 years ago, an association of distributors, manufacturers and suppliers of automotive spare parts was established.

SDCM, the association, is linked to CLEPA and FIGIEFA and has excellent connections to the Polish government. A key task for SDCM is to ensure that Polish legislation meets EU legislative requirements.

By supporting important initiatives such as 'the right to repair', the association indirectly supports reman. SDCM's English speaking president, Alfred Franke, can be contacted at Alfred@sdcm.pl

Poland's car parc currently totals around 15 million passenger cars and approximately two million trucks. It follows that the market for automotive spare parts is very large.

OPTIONS

When looking for spare parts, Polish car owners have several options:

- Buying online at one or more of hundreds of web shops
- Going to local car dismantlers/scrap yards for used OEM parts
- Visiting part wholesalers for new OEM or New AM parts
- Send the defective spare part for repair or reman. This is getting increasingly popular.

The Polish reman market has been driven by cars imported from Germany and seems certain to continue this way for the next several years.

“The remanufacturing industry's main driver is price and warranty”

Re-man in Poland is largely centred on:

- One man shops, specializing in reman/repair of parts, such as starters and alternators
- Workshops and reman/repair facilities
- Small remanufacturers with up to 100 employees





Bo Hansen

A Danish citizen by birth, 45 year old Bo Hansen started out as a trainee for a Lucas service provider in Denmark and qualified as an autoelectrician at the age of 20. Having worked at what is now Borg Automotive, Europe's largest remanufacturer, for some years Bo Hansen decided to test his skills as an entrepreneur and went on to found Airstal together with four fellow Danes.

Since then Airstal has seen steady growth helped by the fact that over the past several years AC compressors have become standard components in all new cars sold in Poland.

- Large remanufacturers with more than 100 employees

The remanufacturing industry's main driver is price and warranty – motorists get OEM quality products at (much) lower prices than original OEM products, and on top of that a two year warranty.

When looking at remanufacturers, small and large, we see that many, if not all, are engaged in exports – with exports often accounting for more than 50% of sales.

This may appear somewhat odd as Poland has 10 million cars older than eight years, which sooner or later will need remanufactured parts.

The Polish Government does not actively promote remanufacturing, yet. If it did, all signs are that motorists/consumers would quickly realise the benefits of reman, resulting in significant growth for the domestic reman market.

One indication can be found at Lauber, one of Poland's largest wholesalers, which recently decided to go for reman by setting up its own reman plant, thus adding a reman range to its portfolio.

As the main driver of remanufacturing in Poland is prices, Polish remanufacturers in many cases find it more profitable to export their products than selling them in the domestic market.

Currently, the most popular products for reman in Poland are:

1. Starters
2. Alternators
3. Turbo chargers
4. Diesel injectors
5. Hydraulic steering racks
6. Diesel pumps
7. Brake Calipers

About Airstal:

Founded in August 2004 and located in the Polish city of Lodz, Airstal has gained a reputation as one of Poland's important remanufacturers of automotive AC Compressors.

Starting out from an entirely different premise – as a producer of fabrics for jeans, - the reorganised Airstal rapidly turned into the respected supplier of remanufactured AC compressors that it is today.

Currently, Airstal's comprises more than 4500 Airstal code numbers, covering the entire European car population, Heavy Duty, Off Road and Construction as well as hundreds of American cars.

Each year, more remanufacturers enter the market, and new opportunities for developing the reputation and awareness of reman exist in Poland. By 2015, annual sales of new spare parts to Polish motorists totalled approximately 3.5 billion euros. Opportunities for further reman growth clearly exists. ■

World Remanufacturing Summit in Singapore

The sixth World Remanufacturing Summit in early September gathered close to 200 attendees, the largest ever remanufacturing meeting in South East Asia.

Organised by Singapore's Advanced Remanufacturing and Technology Centre (ARTC) in partnership with Nanyang Technological University on the 6th-7th September, the event was attended by remanufacturers from the aerospace, Automotive, IT and Marine sectors, equipment and technology suppliers, remanufacturing associations and academics.

Keynote speakers, Prof Rolf Steinhilper from the University of Bayreuth, Dr Shi PeiJing from China National Key Laboratory for Remanufacturing and Dr Michael Thurston from Rochester Institute of Technology, presented on the current remanufacturing market and trends from the European, American and Asian perspectives, respectively. Dr Mitsutaka Matsumoto from AIST also lectured on Sustainable Production and Remanufacturing in Asia.

"The event received lots of positive feedback and compliments from the delegates, and further stimulated collaborations towards sustainable production and remanufacturing activities globally, especially in the APAC region," stated David Low, CEO, ARTC.

Under the theme of "Remanufacturing in the Digital Age" Neil Tatman from Rolls-Royce presented a further keynote speech on his company's Global, Digital Manufacturing Strategy, while Christopher Biddle from ATS Global presented on strategies that remanufacturing and MRO organisations might follow, in order to benefit from digitization.

Transforming best-in-class tech solutions. In the Advanced Remanufacturing technology session, speakers presented on transforming best-in-class technology solutions, such as laser metal deposition, 3-D printing and preventative maintenance into high value added customer solutions for companies in the remanufacturing sector.

In the Asia session, presentations covered the current status of the marine remanufacturing industry, oil & gas remanufacturing, automotive remanufacturing and IT sustainability activities from different regions in Asia.

A session on Supply Chain and Business Model for Remanufacturing explored how increased connectivity among products, customers and manufacturers, promoted by

Industry 4.0, could boost the product service model and further the remanufacturing industry.

In the Remanufacturing Trends and Sustainable Production session, speakers covered the sustainability aspect of remanufacturing and evaluated the impact of remanufacturing from life cycle perspectives. In the meanwhile, trends in remanufacturing development, such as information sharing, service models as well as new sectors were also presented.

Rounding off the summit, delegates visited three local Remanufacturing companies; SAESL, a Trent Centre of Excellence, providing best in class aero engine and component repair services, MTU, a leading manufacturer of large diesel engines and complete propulsion systems, as well as IBM Manufacturing Solutions and Singapore Remanufacturing Center opened their facilities to allow attendees to see their operations. ■

Tech Giants to Back Multi-million Dollar Development Laboratory

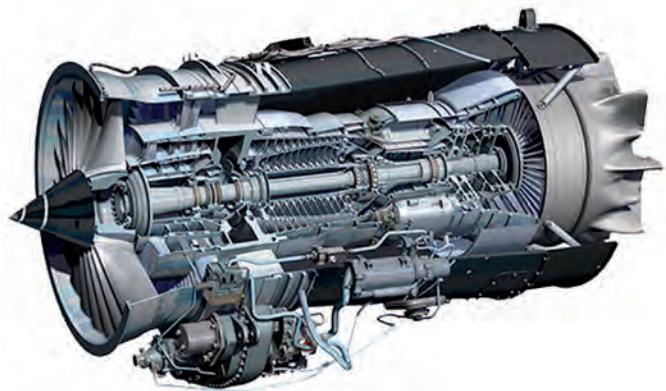
British engineering giant Rolls-Royce, the Agency for Science, Technology and Research (A*Star) and Singapore Aero Engine Services (SAESL) are investing up to \$60 million to set up a facility to develop new technologies for the aerospace industry.

The funding will be used to establish what is called the Smart Manufacturing Joint Lab, which will operate for five years. It will focus on developing next-generation aerospace manufacturing, maintenance, repair and overhaul (MRO) capabilities, enabled by advanced processes, automation and digital technologies.

The lab, which will be supported by 120 staff from the three organisations, will tap A*Star's Advanced Remanufacturing and Technology Centre's Model Factory and other relevant capabilities to test-bed new tech applications.

The developed technologies will eventually be used on site at Rolls-Royce and SAESL facilities. In a statement, Rolls-Royce chairman Ian Davis said: "Singa-

pore, as demonstrated by its Future of Manufacturing initiative, is continually transforming, able and inventive". ■



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